

REMARKS

Claims 1-11 were pending in the application prior to this amendment. Claim 1, the single independent claim, is cancelled herein and replaced with new independent claim 12. Claims 2-4 are cancelled, claims 5-10 are amended and claims 12-18 are added herein. Applicants respectfully request reconsideration of the claims in view of the following remarks.

Applicants' newly appointed attorney has carefully reviewed the application, the Examiner's Office Action, and the Lou, *et al.* reference and would like to thank the Examiner for the very professional manner in which this application has been handled. After reading the application and the Lou, *et al.* reference, Applicants' newly appointed attorney was as surprised at the close tracking of the application drawings and portions of the specification with the Lou, *et al.* reference, as the Examiner must have been.

However, the careful review by the undersigned attorney also revealed differences in the Lou, *et al.* reference and the present invention as it is now claimed.

The single independent claim 1 has now been cancelled and a new independent claim 12 that includes limitations to these differences has been provided. Likewise, four of the dependent claims have been cancelled and some of their limitations are also included in the new independent claim 12. In addition, new claims 13-18 have been added to assure full coverage of Applicants' invention, and the remainder of the original dependent claims 5-11 have been amended to overcome the Examiner's rejection under 35 U.S.C. §112.

More specifically, with respect to the 35 U.S.C. §102 rejection, the new independent claim 12 clearly provides that the titanium nitride is deposited such that only the top surface of the top dielectric layer and the sidewalls of the trench are covered while the bottom of the trench

is left substantially free of titanium nitride. Therefore, the only removal required of titanium nitride is from the top surface of the top layer of dielectric since the bottom of the trench is free of titanium nitride.

In the rejection, the Examiner argues that the Lou, *et al.* disclosure of coating the line trench pattern with a liner and removing the liner everywhere except the sidewalls of the trench reads on the claimed invention. However, carrying out these process steps as described in the Lou, *et al.* reference creates the very difficulties of increased and widened resistance values the present invention seeks to overcome and, therefore, actually teaches away from the invention. For example, as discussed in the second and third paragraphs of the "Description of Prior Art" of the present application, PVD deposition of TiN is required to be thick to "ensure sufficient deposition" or proper coverage to obtain the necessary adhesion.

At column 6, lines 21 and 29 of the Lou, *et al.* reference teaches depositing seed layers of tungsten 450 or a glue layer of Ti/TiN, and FIG. 3c clearly shows these layers on the bottom surface of trench 325 to be very thick. Consequently, Lou, *et al.*, teaches that it is necessary to remove the titanium nitride at the bottom of the trench. Since, according to the present invention, this liner of titanium nitride is not present, removal of the liner on the bottom of the trench is avoided and yet satisfactory adhesion still results.

Therefore, it is respectfully submitted that the single independent claim 12 in the application does now patentably define over the Lou, *et al.* reference and that the dependent

claims are allowable for depending from a claim deemed allowable as well as for their own limitations.

Respectfully submitted,

2 Oct '05
Date

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